

**Solid State Lighting Program  
Program Planning Meeting and Workshop**

**November 13-14, 2003  
Doubletree Hotel, Crystal City, VA**

**Speaker's Biographies**

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***Welcome and Introduction -- M. McCabe, DOE (BT)***

Presently the Program Manager for the Building Technologies Program, Mr. McCabe is responsible for a comprehensive research and regulatory program directed at improving the energy efficiency of residential and commercial building equipment and building systems.

Mr. McCabe has served in a variety of positions in the Department of Energy during a career spanning over 30 years. Mr. McCabe's career has focused mainly on energy efficiency in the buildings sector. For example, while Director of Codes and Standards, Mr. McCabe directed the Department's lighting and appliance standards program.

Mr. McCabe holds a Bachelor of Science Degree in Chemical Engineering from the Catholic University of America. Working closely with EERE and other program areas, Mr. McCabe is the senior manager responsible for the DOE's initiative in SSL.

***Significance of the Opportunity -- D. Garman, DOE (EERE)***

Throughout his career, Mr. Garman's work has focused mainly on energy and the environment. Mr. Garman now heads the DOE's Office of Energy Efficiency and Renewable Energy. This office has identified SSL as a key technology and strongly advocates its accelerated development with the concurrent goals of conserving lighting energy and providing a better lighting solution from American buildings and homes.

Assistant Secretary Garman was confirmed by the United States Senate on May 25, 2001 and was sworn in by Secretary Abraham on May 31. He previously served in a variety of positions on the staff of two U.S. Senators and two Senate Committees during a career spanning nearly 21 years. Most recently, Mr. Garman served as Chief of Staff to Alaska Senator Frank H. Murkowski. Mr. Garman also served on the professional staff of the Senate Energy and Natural Resources Committee and the Senate Select Committee on Intelligence.

### ***Basic Research Synergies& Priorities at BES -- H. Kung, DOE (BES)***

Harriet Kung received her Ph.D in Materials Science and Engineering from Cornell University in 1991. Before joining DOE in 2002, Dr. Kung was a technical staff member and a project leader in the Materials Science and Technology Division at Los Alamos National Laboratory (LANL) where her main research interests focused on developing novel engineering materials through understanding their physical and mechanical behavior.

Presently, Dr. Kung is responsible for the [Physical Behavior of Materials](#) Core Research Activity in the Basic Energy Sciences Program, which focuses on the optical, electronic, magnetic, or other physical responses of materials to external stimuli -- temperature, electromagnetic fields, chemical environments, and proximity effects of surfaces and interfaces etc. Specific research topics in her program portfolio include physical behavior of semiconductors, optoelectronic and photovoltaics, transport mechanisms in solid electrolytes, magnetic and magnetocaloric behavior, and corrosion. She has most recently developed and led the BES-sponsored workshop on “Organic Electronic Materials” held at the University of Utah last Summer.

### ***Basic Research Priorities at NSF and Academia -- V. Varadan, NSF***

Vasundara Varadan is Director of the Electrical & Communications Systems (ECS) Division at the National Science Foundation. The ECS division funds long term basic research programs in microelectronics nanoelectronics, spin electronics, optoelectronics and optical communications, control theory, networking, computational intelligence, sensors and sensor networks, microwave and RF devices, power systems, MEMS and integrative systems. ECS is currently interested in funding programs in organic electronics and photonics with applications to solid state lighting.

Dr. Varadan is a Distinguished Professor of Engineering Science & Electrical Engineering at the Pennsylvania State University, currently on an IPA assignment at NSF. She received her Ph.D in Physics from the University of Illinois in Chicago.

### ***Manufacturing Infrastructure and Metrology for Lighting -- M. Schen, NIST (ATP)***

Michael Schen is Group Leader and Program Manager for the NIST Advanced Technology Program's (ATP) Electronics and Photonics Group. This Group consists of technical managers and business specialists with concentrated emphasis on electronic, photonic, and microsystem technologies that broadly impact the Nation's economy. Dr. Schen's professional areas of emphasis include microelectronics & semiconductor manufacturing; flexible / organic electronics; nano-technology; connected intelligence, including pervasive computing; packaging & interconnection technologies; and advanced electronic & photonic materials, especially organic/polymeric.

Dr. Schen received his Ph.D. in Polymer Science and Engineering from the University of Massachusetts in Amherst (1980-1984), gained his Bachelor's degree in chemistry from the Rochester Institute of Technology, Rochester, NY (1975-1980), and received his Associates in Applied Sciences from the State University of New York at Alfred (1973-1975). In total, Dr. Schen has over 25 years of combined industrial, academic, and government experience in fundamental research, technology development, corporate research & development, advanced metrology, technology planning, program management and personnel supervision.

***Is the future of Lighting Solid State? -- D. Kirkpatrick, DARPA (ATO)***

Doug Kirkpatrick is a Program Manager with the Defense Advanced Research Projects Agency, Advanced Technology Office. Dr. Kirkpatrick is currently managing the High Efficiency Distributed Lighting (HEDLight) program at DARPA, which seeks to enable the widespread efficient use in the DOD of remote source lighting. In addition to HEDLight, he is managing a variety of other efforts that emphasize the transition of R&D technology to pre-prototype production, including efforts in electromagnetic sensors, biotech, and advanced materials. Prior to joining DARPA in May of 2002, Dr. Kirkpatrick was the VP for R&D at Fusion Lighting, a next-generation lighting technology company seeking to commercialize the innovations of the sulfur lamp. Prior to Fusion, Dr. Kirkpatrick was a Division Manager with SAIC in McLean, Virginia, where he built a business unit of scientists and engineers pioneering the crossover technology applications from electromagnetics, circuit design, biosystems and sensors, and advanced coatings and materials. Dr. Kirkpatrick earned his Ph.D. in physics from MIT in 1988, and his B.S. in Physics and Mathematics from the College of William and Mary in 1980.

***Next Generation Lighting Initiative Perspective -- C. Becker, NEMA (NGLA)***

Since completing his doctorate in physical chemistry from the University of Chicago in 1979, Dr. Becker has held a number of technical management positions within GE Global Research, GE Aerospace, GE Industrial Systems, and GELcore, GE's joint venture in LEDs. Since 2000, he has led GE Global Research efforts in the development of high power LEDs and LED systems for illumination, which has resulted in the demonstration of the brightest reported UV-LED powered white lamps and systems. He is currently Manager of the Electronic Materials and Manufacturing Laboratory, which includes development of LED packages and systems, as well as OLED production methods. He also serves on the External Advisory Committee of the Sandia Solid State Lighting Grand Challenge LDRD program. As former Chairman of the Next Generation Lighting Consortium and a founding member of the Next Generation Lighting Alliance (NGLA), Dr. Becker will discuss the Alliance's purpose and activities in promoting Solid State Lighting.

### ***US Display Consortium Perspective -- M. Ciesinski, USDC***

As Chief Technical Officer of the United States Display Consortium (USDC), Dr. Pinnel has responsibility for the planning and implementation of the technical work programs and management of the DOD funding that underwrites this effort. In this role he chairs the USDC Technical Council, comprised of senior technical officials from each of the member companies, and is responsible for contracting and operations for the joint development programs between USDC and the equipment and materials supplier industry segment. Dr. Pinnel is also responsible for the interface and coordination of work programs with other consortia, the university community and the national laboratories. Dr. Pinnel shares responsibility with the CEO/President position for the day-to-day operations and the development of long-term strategies and business plans for the consortium.

Prior to his current position, Dr. Pinnel held both technical and managerial assignments in AT&T-Bell Labs (now Lucent Technologies). His technical R&D assignments involved alloy development, solid state diffusion processes, oxidation and corrosion studies, reliability evaluations and failure mode analysis related to various electronic apparatus and interconnection components. He published over 50 technical papers on these topics. Various managerial assignments included responsibility for reliability analysis, technology planning, standards development and process technology/product development of interconnection components and surface mount assembly. His most senior position at AT&T was as the Chief Technical Officer of the Interconnection Technology Business Unit of AT&T Microelectronics from 1990 to 1993. This included responsibility in Whippany, NJ; Richmond, VA; and Kansas City, MO for research, development, manufacturing engineering, information systems, and technology planning at Bell Laboratories and AT&T-Microelectronics (Lucent Technologies) manufacturing facilities for printed circuit boards, backpanels, multi-chip modules, and electrical and optical connectors.

### ***Optoelectronic Industry Development Association -- A. Bergh, OIDA***

Arpad A. Bergh received his Ph.D. from the University of Pennsylvania joining Bell Laboratories and later serving Bellcore as a Division Manager of the Device Science and Technology Research Division. In 1994 he became full time president of the Optoelectronics Industry Development Association (OIDA) in Washington, DC. While at Bell Labs, he co-authored a book on Light Emitting Diodes, published by Oxford Press. While at OIDA he and Roland Haitz of Agilent presented the case of accelerating R&D for SSL to Senator Bingaman that led to the legislation known as Next Generation Lighting Initiative.

### ***Progress & Future Directions in LED Efficiency -- M. Krames, Lumileds***

Michael R. Krames received his B.S. degree in electrical engineering from the University of Texas at Austin, TX, in 1989 and the M.S. and Ph.D. degrees in electrical engineering from the University of Illinois at Urbana-Champaign, IL, in 1992 and 1995, respectively. His Ph.D. thesis work was completed in the Solid State Devices Laboratory, where he developed native-oxide based optoelectronic devices, including laser diodes and waveguides, in the InGaAsP-InP and AlGaAs-GaAs material systems. After graduation, he joined Hewlett-Packard Optoelectronics Division as a research engineer developing high-power highly efficient visible-spectrum LEDs based on the AlGaInP material system. He then transitioned to research on light-emitting devices based on the III-nitride material system, and is currently manager of Lumileds Lighting Advanced Laboratories, whose research focuses upon advanced III-nitride materials and emitter technology and upon luminescent materials for solid-state lighting applications.

### ***The History and Future Trends of OLEDs -- M. Hack, UDC***

Dr. Michael Hack is currently Vice-President of Strategic Product Development at Universal Display Corporation in Ewing, New Jersey. He is responsible for developing advanced OLED products, in particular those based on active matrix backplanes. Dr. Hack received his Ph. D. degree from Cambridge University, England in 1981 and has over 160 publications and 21 patents in the field of thin film silicon and organic technology to his credit.

### ***Intro, Overview of Projects, & Organization of the SSL -- J. Brodrick, DOE (BT)***

Dr Brodrick received his PhD in Mechanical Energy from the University of Illinois in 1979. Since then he has been instrumental in advancing energy efficient technologies in commercial, industrial and residential buildings. As a key manager assigned to the Buildings Technologies (BT) Program, Dr. Brodrick is presently the Lighting Research and Development (LR&D) Manager responsible for Solid State Lighting in addition to other, more conventional sources. Among his many accomplishments spanning a 10-year carrier with the DOE is the conceptualization of the present Energy Star™ Program, which helps manufacturers promote the value of new energy efficient products.

### ***Procedural Issues, IP, Procurement Issues -- E. Christy, NETL (EE Programs)***

Mr. Christy is currently the Product Manager for Energy Conservation Programs at the U.S. Department of Energy's National Energy Technology Laboratory (NETL). Mr. Christy received his Bachelor and Master of Science degrees in Electrical Engineering from West Virginia University. While at the NETL, Mr. Christy served for over 11 years as a project manager in sensor technologies and more recently in solid state lighting. Mr. Christy's current responsibilities include managing the NETL's programs in support of EERE's Offices of Building Technologies, Weatherization and Intergovernmental

Programs, and sub-programs in Mining technologies and the Biomass and Alternative Methane Fuels Super Energy Service Performance Contracts.